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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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LANXESS CORPORATION
111 RIDC PARK WEST DRIVE
PITTSBURGH, PA 15275-1112

EXAMINER

TESKIN, FRED M

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,455

Applicant(s)

RESENDES ET AL.

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>082504</u> . | 6) <input type="checkbox"/> Other: ____. |

Claims 1-5 are currently pending and under examination.

The abstract of the disclosure is objected to because it is not in single-paragraph format. Correction is required. See MPEP § 608.01(b)(C).

The disclosure is objected to because of the following informalities:

(i) A brief description of the drawings in compliance with 37 CFR § 1.74 has not been provided.

(ii) On page 8, line 21, "Example" should be pluralized.

(iii) The examples provided on page 8 are said to illustrate the present invention (see page 7, final line) which, per claim 1, operates in the presence of at least one organic nitro compound and $\text{AlCl}_3/\text{water}$. However, according to the experimental details set forth on page 8, Examples 1-5 illustrate an " AlCl_3 initiated polymerization" (see ll. 22-23); an $\text{AlCl}_3/\text{water}$ catalyst system is not mentioned, nor is there an affirmative addition of water to the reaction mixture. It is therefore unclear how Examples 1-5 are intended to represent embodiments of the claimed invention.

Clarification and appropriate correction of the specification is required.

Claims 4 and 5 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, these claims have not been further treated on the merits.

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Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Use of the term "organic" in claims 1-3 creates confusion leading to a lack of clarity given that the general formula (I) (see claim 2) embraces the *inorganic* compound, nitrous acid (i.e., H-NO_2). The fact that this inorganic compound is intended to qualify as an "organic" nitro compound within claim 1 leads to uncertainty as to the scope of nitro compounds covered by the claims. Clarification and appropriate correction are required.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0969026 ("Omura").

Applicants' invention, as defined in claim 1, is a process for producing polymers comprising repeating units derived from at least one isoolefin monomer, at least one multiolefin monomer and optionally further copolymerizable monomers in the presence of at least one organic nitro compound and AlCl_3 /water wherein the process is conducted in the absence of compounds selected from the group consisting of vanadium compounds, zirconium halogenid, hafnium halogenides.

Omura broadly discloses a method of manufacturing isobutylene copolymer by cationic polymerization in the presence of a Lewis acid catalyst and water in defined proportions (paragraphs 0001 and 0011). Concrete examples are provided of the production of isobutylene/styrene copolymer in the presence of water/ TiCl_4 .

Omura differs from the claimed invention only in that the step of producing polymer comprising, *inter alia*, repeating units derived from multiolefin monomer in the presence an organic nitro compound and AlCl_3 /water is not disclosed in a single embodiment.

However, in regard to the Lewis acid catalyst, Omura names AlCl_3 as a member of a relatively small genus of specific metal halides (i.e., nine per paragraph 0016) utile in its invention. Although TiCl_4 is indicated as preferable, the mere identification of a preferred embodiment would not discourage the use of any of the other named metal halides as catalyst. Given the limited size of the genus, one of ordinary skill would have

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been inclined to select AlCl_3 as the Lewis acid catalyst of Omura in the expectation of achieving the desired cationic polymerization.

To further include an organic nitro compound in the polymerization system of Omura would have been obvious since Omura explicitly teaches the use of a solvent that can contain a small amount of other solvent; for example, "organic compound having a nitro group such as nitroethane and the like" (paragraph 0021). Additionally, since the use as comonomer of specific conjugated dienes is proposed (paragraph 0015), it would have been obvious to one of ordinary skill in the art to apply the method of Omura to producing polymer comprising repeating units derived from isobutylene and copolymerizable monomers including a multiolefin (conjugated diene), in the presence of AlCl_3 /water and an organic nitro compound, as claimed.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Langedijk et al is pertinent to the polymerization of isobutylene in the presence of anhydrous aluminum chloride and nitromethane (note Example 4.)

Claim 3 would be allowable if amended or rewritten to overcome the rejection under 35 U.S.C. 112 set forth in this Office action and to include all the limitations of the base claim and any intervening claim. Producing the defined polymers in the presence of AlCl_3 /water and an organic nitro compound at a concentration within the claimed range is not taught nor fairly suggested in the available prior art.

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Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/03-10-06


FRED TESKIN
PRIMARY EXAMINER
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